

REMARKS/ARGUMENTS

Prior to this Amendment, claims 1-19 were pending in the application. Claims 1, 8, 10, 12, 17, and 18 are amended to more clearly claim the subject matter of the invention. Claim 19 is cancelled. No new matter is added by these amendments with support being found at least in the originally filed claims and in the specification at page 2, line 19 to page 3, line 5, Figure 3 and corresponding text in the specification (and particularly, page 15, lines 9-14), page 15, lines 22-26, and page 16, lines 1-28.

Claims 1-18 remain in this application for consideration by the Examiner.

Objection to the Title

In the July 29, 2003 Office Action, the title was objected to as not being descriptive. A new title is provided with this Response that is clearly indicative of the invention to which the claims are directed.

Objection to the Drawings

In the July 29, 2003 Office Action, the substitute Figure 2 provided in the previous response was accepted, but it was noted that the specification still referred to an element 280 that was not shown in the figures. The specification is amended to remove reference to the element which is not required in the figures to clearly describe the blocking flag element that may be included in commands from the controller to distributed virtual storage agents.

Objection to the Disclosure

Additionally, in the July 29, 2003 Office Action, the disclosure was objected to because of informalities noted in the previous action and not fully addressed in the prior response. The specification has been amended further to address the prior objections. Specifically, the paragraph at line 15 of page 15 is amended to clarify use of the quiesce and activate commands at this point in the disclosure. The paragraph at line 17 of page 14 is amended to clarify that the process 300 is the creation of a new

virtual disk or snapshot disk from an existing virtual disk rather than copying of data from a storage device (with support being found at least in the first two paragraphs of the Summary of the Invention, and particularly, at page 2, line 24 to page 3, line 5).

Rejection Under 35 U.S.C. § 112, Second Paragraph

In the July 29, 2003 Office Action, claims 1-19 were rejected under 35 U.S.C. § 112, second paragraph as being indefinite for failing to particularly point out and distinctly claim the subject matter of the invention. This rejection is traversed based on the amendments to the claims and following remarks.

Claim 1 was rejected because of the language “copying the contents of a first virtual disk” in the preamble when no data appeared to be copied. Claim 1 is amended such that the preamble indicates the method is “creating a second virtual disk or a new snapshot disk using the contents of a first virtual disk.” The recitations now comprise: providing a first table with entries that associate original segments of a first virtual disk with locations in storage containers and copying entries of the first table to a second table to create a second virtual disk. The specification (page 15, lines 9-11) illustrates an example embodiment of these recitations: a snapshot disk is created in part by copying the contents of an existing mapping table into a new mapping table. Hence, it is believed claim 1 and claims depending from claim 1, i.e., claims 2-11 clearly define the invention being claimed.

Claims 8, 10, and 12 have been amended to clarify that a new segment for the second virtual disk is being allocated in the method of these claims, and contents in an original segment of the first virtual disk are copied into that newly allocated segment of the second virtual disk. An example embodiment of allocating virtual disk segments is described and explained in the specification at least at page 15, line 22 to page 16, line 18. The specification at page 16, lines 10-12 states that “the particular mechanism and infrastructure to select and allocate free segments is beyond the scope of this disclosure.” As is often the case in patent applications, this language is

included to indicate that the invention is not limited to a specific memory allocation technique but instead encompasses nearly any useful memory allocation technique. Every term of a patent application does not have to be defined but instead, the applicant can rely on the knowledge of those skilled in the art to define many commonly used terms (e.g., memory, communication channel, storage network, agent, host, and allocating of memory segments). If a definition is not provided, a term in an application is given the ordinary meaning used by those skilled in the art (such as by using a dictionary used in the field, e.g., Newton's Telecom Dictionary provides that "allocate" means "to assign space or resources for a specific task...often used to refer to memory or disk space"). Claims 8, 10, and 12 are believed to distinctly claim the subject matter of the invention. It is believed this also addresses the Section 112, second paragraph rejections of claims 13-16 that depend from claim 12.

Claim 17 is amended by this Response to clarify that the "operations" to be completed at a mapping table are "I/O" operations, which addresses the rejection of claim 17 as being indefinite. Similarly, claim 18 which depends from claim 17 was amended to correspond to claim 17. Claim 19 is cancelled.

Rejection Under 35 U.S.C. § 112, First Paragraph

In the July 29, 2003 Office Action, claims 1-16 were rejected under 35 U.S.C. § 112, first paragraph as failing to comply with the enablement requirement. This rejection is traversed based on the amendments to the claims and following remarks.

Claims 1-7, 9, and 11 are believed to be fully enabled with claim 1 being amended to clarify that the method is directed to the creation of a second virtual disk or a new snapshot disk using the contents of a first virtual disk. Hence, an essential step of copying data is not missing or needed.

Claims 8, 10, and 12 have been amended to clarify that the method comprises allocating a new segment for a second virtual disk and at some point, copying the contents from an original segment for a first virtual disk into the new segment. It is

believed that the description which describes allocating of segments at least at page 15, line 23 to page 16, line 18 is more than sufficient to enable one skilled in the art to make and use or practice the invention without undue experimentation. The Office Action points to the language at page 16, lines 10-12 as basically reversing any groundwork laid elsewhere in the application or as trumping the general knowledge of those skilled in the art. In contrast, Applicants believe that this language merely states that those skilled in the art will be aware of many mechanisms and infrastructures that can be used to perform the segment allocation and that to discuss a specific technique is not necessary to teach the features of the invention. Hence, claims 8, 10, and 12 (and claims 9, 11, and 13-16 that depend therefrom) are believed to be enabled by the specification.

The Office Action also stated that claim 16 had no support in the specification. The term "agent" is used often in the computer industry, and generally, an agent is a device or software program that "acts on behalf of another person or thing, with delegated authority" per Newton's Telecom Dictionary. It is believed that one skilled in the art would understand the use of the term agent as provided in the claims and specification. Further, the agents 110 are described at page 5, lines 6-18. The specification points out that the agents 110 may store the mapping table in volatile memory and may be "embedded in the host 140, for example, a backplane card serving as the mapping agent 110." While not being the only structure or constitution of an agent according to the invention, the description provided is enabling to one skilled in the computer and software arts.

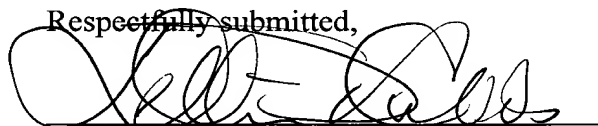
Conclusions

No fees are believed due with this response, but any fee deficiency associated with this submittal may be charged to Deposit Account No. 08-2025.

Applicant respectfully requests that a timely Notice of Allowance be issued in this case.

Date 26 September 2003

Respectfully submitted,



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